SYNOPSIS

Role of Artificial Intelligence powered analytical and digital tools to maximize competitive advantage in Indian Healthcare

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Introduction:

Artificial intelligence (AI) is the emulation of human intelligence in devices that have been designed to behave and think like humans. The phrase can also be used to refer to any computer that demonstrates characteristics of the human intellect, like learning and problem-solving. The phrase is widely used in reference to the task of creating artificial intelligence (AI) systems that possess human-like cognitive abilities, such as the capacity for reasoning, meaning-finding, generalisation, and experience-based learning. It has been proven that computers can be programmed to perform extremely complicated jobs ever since the advent of the digital computer in the 1940s. Artificial intelligence, in this narrow sense, is used in applications as diverse as medical diagnosis, computer search engines, and voice or handwriting recognition. Some programmes have reached the performance levels of human specialists and professionals in carrying out particular specified activities. Aspects of intelligence that fall under the umbrella of AI include learning, reasoning, problem-solving, and perception (Copeland 2020).

Artificial Intelligence is a branch of computer science (Barr 1982). There are several definitions of Artificial Intelligence. Wikipedia defines artificial intelligence, sometimes which is called machine intelligence, is intelligence is shown by machines, contrary to the natural intelligence displayed by humans and animals (Wikipedia 2020). As per SAS analytics "Artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs, and perform the human-like task (SAS, 2020).

Artificial intelligence (AI) and associated technologies are becoming more and more common in commerce and society, and they are now being used in healthcare. Numerous elements of patient care as well as operational procedures within provider, payer, and pharmaceutical companies could be transformed by these technologies (PWC, 2020).

In the healthcare industry, the technologies that allow robots to recognise, comprehend, finish, and learn to carry out clinical and administrative healthcare tasks are together referred to as artificial intelligence (AI) (Grom T, 2018).

Review of Literature:

Understanding the history and meaning of Artificial Intelligence (AI) and other related terms like machine learning (ML) and deep learning (DL) and how these facilitate healthcare organizations to evaluate an enormous amount and range of data (e-Health Initiative, 2018).

How healthcare industry is rapidly adopting and adapting with digital technology. A truly digital healthcare industry is on pathway to transform medical diagnosis and treatment, with a shift in focus to prevention and management because of advent of widely introduced digital apps and connected devices (World Economic Forum, 2016).

The literature review gave an idea about various uses of AI into three categories:

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Descriptive: Descriptive AI is extensively used. It uses the data gathered from already occurred events to gain insights.
Predictive: Predictive AI uses the descriptive data to make predictions about the future.
Prescriptive: Prescriptive AI detects the trends and suggests the possible course of treatments
AI has numerous applications in healthcare sector. Different types of AI solutions are available for example mechanization of medical diagnosis, programmed analysis of medical tests, detection and screening of diseases, wearable sensor based medical devices and monitoring equipment, patient management systems, predictive healthcare diagnosis and disease prevention. (Javiya, 2018).

With the increasing use of AI in healthcare, there are certain-

- Technical challenges in AI developments
- Social, economic and legal challenges

To address the challenge, AI researchers and medical practitioners have to collaborate to prioritize and build up the solutions that handle critical clinical requirements. (Yu et al, 2018).

Rationale:

This study examines the current status and usage of digital and AI applications in healthcare and challenges for real-life deployment of these tools and techniques in hospital healthcare system through survey of different stakeholders.

Objectives:

1. To explore and analyze AI powered analytical and digital tools being used in different areas of healthcare
2. To identify and study stakeholders' perspective toward AI based tools/technologies
    a. Healthcare providers
    b. AI developers
    c. Regulators
    d. End Users
3. To study and analyze barriers/challenges in use/development of AI solutions
4. To recommend a strategic model to overcome these barriers

Research Framework:

Inclusion Criteria

- Healthcare providers
- AI developers
- Regulators
- End users

Research Approach

- Prospective

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Research Design

- Descriptive-Exploratory Research design

Sampling Technique:

- Non Probability Judgmental and Snowball Sampling

Data Collection Tool:

- Interview
- Standardized questionnaire

Data Analysis

- Descriptive and Inferential Statistics
- Interpretive Structural Modeling

Expected Outcome:

This study is expected to help us understand the extent up to which AI based tools is being used in Indian Healthcare industry. Also we would be able to find out barriers/ challenges to the use of AI and machine learning in Indian scenario and to develop strategic model that can provide a competitive edge to healthcare industry.

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